

# Maths Challenges

## Sand sculptures

Resources: sand, mat or bin bag, measuring tape

Give each group a mat/bin bag and an amount of sand. On their mat, can they make 3 different sculptures with the following: 1. that has the biggest volume; 2. that has the biggest area; and 3. that has the biggest perimeter?

Can they estimate the size? How would they work out the dimensions of each sculpture? Give each group a measuring tape (or scales) so that they can work out the volume, area and perimeter.

For KS1, can each group make two different shapes, or two shapes that have different sized perimeters or areas?

## Natural memory game

Resources: 12 large leaves, cups or half toilet rolls, 6 pairs of materials such as pebbles, seeds, twigs, small leaves, etc.

This could be shown as an example, then children can create their own for each other to complete. Draw two large squares in the playground using chalk. Position 6 cups in each square, making sure they are a mirror image of each other. Position pairs of objects between the two squares but in different places, hiding them under the cups. Children take it in turns to lift the cup from each square to find a pair. If they are successful, the objects (or the objects and the cups) are removed and they get a point.

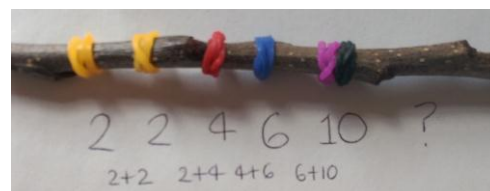
This can be done using cups, large leaves or half toilet rolls.

## Loom band coding

Resources: loom bands, sticks

Individually or in pairs, children can make their own number code on a stick (0 - 9), with each colour corresponding to a different number.

Using a different stick, they can make codes for each other to work out which number comes next, e.g. multiples of a number, even or odd numbers, prime numbers, adding your number to the one before to get the next number, etc. This could be passed around to a few children, adding to the sequence each time.



## Stick challenges

Resources: ~20 sticks for each group

- 1. How many right angles can you make?**  
Can they arrange the sticks to make as many right angles as possible? Put a leaf on each right angle.
- 2. Spot the angles** Can they make as many letters/numbers/words using the sticks? Find the angles and put a: pebble on each right angle, green leaf on each obtuse angle, brown leaf on each acute angle
- 3. Shape challenge** Can they make a picture that contains as many different shapes as possible?
- 4. Triangle challenge** Can they make as many triangles as possible using the sticks?



## Number pictures

Resources: wide range of natural materials, whiteboards and pens

Each group are given a challenge to find a set number of natural materials that are equally divided into a set number of categories, e.g. 32 materials divided into 4 categories of pebbles, green leaves, brown leaves and acorns.

Can the children work as a group to make a piece of natural art using these materials?

They could be awarded points for completing certain challenges, e.g.

- Tallest structure
- Symmetrical picture
- Include a set number of different shapes

